

Amendments to and Listing of the Claims:

This listing of claims replaces all prior versions and listings of claims in this application.

Listing of Claims:

1. (Previously presented) An optical disc drive to be loaded with an optical disc that includes tracks on which a plurality of marks are formed, the optical disc drive comprising:
 - an optical system for focusing a light beam on the optical disc loaded;
 - a photodetector, which includes multiple areas to receive the light beam that has been reflected from the optical disc and which generates multiple read signals representing quantities of light received at the areas, the multiple read signals including a first read signal and a second read signal, each read signal having at least one frequency component;
 - a first filter that receives the first read signal, attenuates a frequency component of the first read signal, and outputs a first processed signal, the first processed signal having the attenuated frequency component of the first read signal, the frequency component to be attenuated being determined by the minimum length of the marks which are formed on a track;
 - a second filter that receives the second read signal, attenuates a frequency component of the second read signal, and outputs a second processed signal, the second processed signal having the attenuated frequency component of the second read signal, the frequency component to be attenuated being determined by the minimum length of the marks which are formed on a track;
 - a phase difference detecting section for detecting a phase difference between the first and second processed signals;
 - a signal generating section for generating a tracking error signal, representing a positional relationship between a focal point of the light beam on the optical disc and a target one of the tracks, based on the phase difference; and
 - a control section for generating a control signal based on the tracking error signal, wherein in accordance with the control signal, the optical disc drive controls the focal point of the light beam across the tracks on the optical disc.
2. (Original) The optical disc drive of claim 1, wherein the optical system includes:
 - a light source, which emits the light beam;

a lens, which focuses the light beam on the optical disc; and
an actuator, which adjusts a position of the lens, and
wherein in response to the control signal, the optical disc drive drives the actuator to adjust the position of the lens such that the focal point of the light beam is located on the center of the target track.

3. (Previously presented) The optical disc drive according to claim 2, wherein each of the first and second filters removes the attenuated frequency component.

4. (Cancelled)

5. (Previously presented) The optical disc drive according to claim 2, wherein each of the first and second filters removes frequency components of which the frequencies are equal to or higher than the particular frequency.

6. (Previously presented) The optical disc drive according to claim 2, wherein each of the first and second filters further removes a frequency component of a frequency that corresponds to a mark of a second shortest length.

7. (Previously presented) The optical disc drive according to claim 1, wherein the optical disc drive determines the frequency by a linear velocity of the track and the length of the mark at the focal point of the light beam, the frequency corresponding to the minimum length of the marks, and

wherein each of the first and second filters attenuates the frequency component of the determined frequency.

8. (Previously presented) A tracking control method comprising steps of:
focusing a light beam on an optical disc that includes tracks on which a plurality of marks are formed;
receiving the light beam, reflected from the optical disc, at multiple areas;

generating multiple read signals representing quantities of light received at the areas, the multiple read signals including a first read signal and a second read signal, each read signal having at least one frequency component;

receiving the first read signal, using a first filter to attenuate a frequency component of the first read signal, and outputting a first processed signal, the first processed signal having the attenuated frequency component of the first read signal, the frequency component to be attenuated being determined by the minimum length of the marks which are formed on a track;

receiving the second read signal, using a second filter to attenuate a frequency component of the second read signal, and outputting a second processed signal, the second processed signal having the attenuated frequency component of the second read signal, the frequency component to be attenuated being determined by the minimum length of the marks which are formed on a track;

detecting a phase difference between the first and second processed signals;

generating a tracking error signal, representing a positional relationship between a focal point of the light beam on the optical disc and a target one of the tracks, based on the phase difference;

generating a control signal based on the tracking error signal; and

controlling the focal point of the light beam across the tracks on the optical disc in accordance with the control signal.

9. (Previously presented) A computer readable storage medium having stored thereon a computer program for use with an optical disc drive for tracking control purposes, the optical disc drive to be loaded with an optical disc that includes tracks on which a plurality of marks are formed,

wherein the computer program causes the optical disc drive to perform steps of:

focusing a light beam on the optical disc loaded;

receiving the light beam, reflected from the optical disc, at multiple areas;

generating multiple read signals representing quantities of light received at the areas, the multiple read signals including a first read signal and a second read signal, each read signal having at least one frequency component;

receiving the first read signal, attenuating a frequency component of the first read signal,

and outputting a first processed signal, the first processed signal having the attenuated frequency component of the first read signal, the frequency component to be attenuated being determined by the minimum length of the marks which are formed on a track;

receiving the second read signal, attenuating a frequency component of the second read signal, and outputting a second processed signal, the second processed signal having the attenuated frequency component of the second read signal, the frequency component to be attenuated being determined by the minimum length of the marks which are formed on a track;

detecting a phase difference between the first and second processed signals;

generating a tracking error signal, representing a positional relationship between a focal point of the light beam on the optical disc and a target one of the tracks, based on the phase difference;

generating a control signal based on the tracking error signal; and

controlling the focal point of the light beam across the tracks on the optical disc in accordance with the control signal.

10. (Previously presented) A chip circuit for use in an optical disc drive, the optical disc drive having:

an optical system for focusing a light beam on an optical disc that includes tracks on which a plurality of marks are formed; and

a photodetector, which includes multiple areas to receive the light beam that has been reflected from the optical disc and which generates multiple read signals representing quantities of light received at the areas, the multiple read signals including a first read signal and a second read signal, each read signal having at least one frequency component;

the optical disc drive controlling a focal point of the light beam across the tracks on the optical disc in accordance with a control signal,

wherein the chip circuit comprises:

a first filter that receives the first read signal, attenuates a frequency component of the first read signal, and outputs a first processed signal, the first processed signal having the attenuated frequency component of the first read signal, the frequency component to be attenuated being determined by the minimum length of the marks which are formed on a track;

a second filter that receives the second read signal, attenuates a frequency component of the second read signal, and outputs a second processed signal, the second processed signal having the attenuated frequency component of the second read signal, the frequency component to be attenuated being determined by the minimum length of the marks which are formed on a track;

a phase difference detecting section for detecting a phase difference between the first and second processed signals;

a signal generating section for generating a tracking error signal, representing a positional relationship between the focal point of the light beam on the optical disc and a target one of the tracks, based on the phase difference; and

a control section for generating the control signal based on the tracking error signal.